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ABSTRACT

The Test for Inquiry Social Studies (TISS) is a 40-item multiple-choice instrument designed to measure the application of either inquiry social studies or higher-level cognitive thinking skills in fifth and sixth graders. The test can generally be completed in 40 to 50 minutes. This administrator's guide contains information on the reliability, content validity, average difficulty and readibility of TISS items. Percentage frequency distributions, average scores and standard deviations for a control group of 342 students from schools utilizing a traditional social studies textbook and an experimental group of 694 students from schools utilizing commerical social studies inquiry programs are included, as well as an answer key and test booklet. (Author/JAC)

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A TEST FOR INQUIRY SOCIAL STUDIES

Sharon Pray Muir, Ph.D.

Administrator's Guide

A Test for Inquiry Social Studies (TISS) is recommended for use with fifth or sixth grade students as a measure of their application of either inquiry social studies or higher cognitive thinking skills.

The test was designed in 1976 as part of a doctoral dissertation at the University of Nebraska, Department of Elementary Education.[1] While the study included fourth grade students in both the control and the experimental groups, informal observation of that age group revealed high frustration. For that reason, it is now recommended only for fifth and sixth graders.

The test consists of 40 multiple-choice items. It is unique in that the need for prior knowledge has been minimized and it allows students to apply processes associated with "higher cognitive thought" as defined by Bloom's Taxonomy of Educational Objectives: Cognitive Domain. The relationship of the inquiry process and higher cognitive thought is established in social studies literature.[2]

ANALYSIS DATA

TISS has been analyzed on the following factors:

Reliability

Item-total correlations yield reliability coefficients of .85 at the fifth grade and of .82 at the sixth grade levels.

Content Validity

Content validity was established by two panels. One assessed the appropriateness of content to social studies in the intermediate grades and classified items by the social science discipline(s) from which content was drawn. Disciplines which are represented are anthropology-sociology, economics, geography, history and political science as well as general problem solving.

The second panel consisted of eleven people from ten states who had considerable experience with the Taxonomy. Each item was classified according to the Taxonomy level it represented. Interjudge reliability was low; nevertheless, it is safe to conclude that all items represent levels above the knowledge level and that each "higher" level is represented.

Average Difficulty

The ideal average difficulty for a 40-item test in which each question has four options would be 62.5. Average difficulties for the fifth grade, 53.33, and for sixth grade, 59.58, indicate that it is slightly more difficulty than that ideal.

Readability

Each item in the test was analyzed individually for readability level by computing the Maginnis adaptation of the Fry readability formula.[3] Readability among items ranged from grade one to grade six on 36 items, at grade seven on 3 items and at grade eight on a single item. The average readability for the entire test is 3.7.

Sexism

An attempt was made to minimize sex bias by eliminating references to sex when possible. Male and female roles were evenly distributed when reference to sex was appropriate.

ADMINISTRATION TIME

TISS is not a timed test. It is desirable that every student complete each item. A 40 to 50 minute period is usually sufficient.

INTERPRETATION

TISS was administered to two groups of intermediate students. The control group (N=342) was enrolled in schools which employ a traditional textbook in social studies. The experimental group (N=694) was drawn from classrooms which use one of three commercial inquiry programs: Holt Databank System, Man: A Course of Study,

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or the Taba Social Studies Curriculum. Comparison of the scores of the two groups was statistically significant in favor of the experimental group at the .01 level.

Table I provides the percentage frequency distributions for both groups at each grade level.

TABLE I

PERCENTAGE FREQUENCY DISTRIBUTIONS

Raw Score	Experimental Gr. 5	Experimental Gr. 6	Control Gr. 5	Control Gr. 6
36-38	1	3		2
33-35	6	9		1
30-32	10	11	4	6
27-29	9	14	12	14
24-26	11	13	8	19
21-23	18	18	14	12
18-20	14	14	11	12
15-17	12	9	18	11
12-14	9	5	14	12
9-11	7	3	9	7
6- 8	3	1	9	2
3- 5				2

The average scores and standard deviations for each group are found in Table II.

TABLE II

AVERAGE SCORES AND STANDARD DEVIATIONS

	Experimental Gr. 5	Experimental Gr. 6	Control Gr. 5	Control Gr. 6
Mean Score	21.31	23.83	18.42	20.86
St. Dev.	7.33	6.72	6.95	6.95

Schools which administer TISS to their students may wish to make comparisons to the data in Tables I and II. TISS may also be used in a criterion-referenced manner. Items may be selected and administered individually which fit local objectives. In such cases, data in Table III indicate the percentage of correct responses to each item by inquiry groups at both grade levels. An asterisk (*) identifies newly revised items on which data may vary.

TABLE III

PERCENTAGE FREQUENCY DISTRIBUTION OF CORRECT RESPONSES BY INQUIRY SUBJECTS

Item Number	Gr. 5	Gr. 6	Item Number	Gr. 5	Gr. 6
1	49	63	21	64	72
2	75	85	22	39	42
3	40	60	23	*29	*40
4	43	63	24	57	66
5	61	68	25	32	34
6	59	69	26	79	83
7	*69	*86	27	70	75
8	55	68	28	51	56
9	*43	*51	29	71	66
10	33	34	30	41	43
11	56	61	31	62	61
12	62	70	32	67	68
13	56	66	33	69	64
14	73	77	34	35	42
15	58	66	35	56	59
16	46	62	36	61	61
17	39	36	37	60	58
18	57	61	38	43	54
19	58	66	39	47	50
20	62	71	40	50	53

ANSWER KEY

1. c	11. b	21. d	31. a
2. c	12. a	22. b	32. c
3. b	13. d	23. d	33. a
4. b	14. b	24. c	34. a
5. d	15. b	25. a	35. d
6. c	16. d	26. b	36. a
7. a	17. c	27. d	37. b
8. c	18. d	28. c	38. d
9. a	19. b	29. a	39. c
10. a	20. d	30. c	40. b

[1]Muir, Sharon Pray. "Construction of a Device to Measure the Cognitive Outcomes of Inquiry Social Studies," unpublished dissertation, University of Nebraska, 1976. University Microfilms Order # 77-912.

[2]Ibid., pp. 18-20.

[3]Maginnis, George H. "The Readability Graph and Informal Reading Inventories," The Reading Teacher, XXII (March, 1969), pp. 516-518, 559.

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A TEST FOR INQUIRY SOCIAL STUDIES

Grades 5 and 6

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1. Mrs. Green wants to take a group of people on a tour titled, "Japan since World War II."

   Which statements makes her most qualified?

   a. Her grandmother was born in Japan.
   b. She studied the Japanese language in college.
   c. She lived in Japan for all but five years since the war.
   d. She wrote a book about Japan before World War II.

2. Sue believes that Candidate X is the person to be governor. Which of the following is the best reason for her belief?

   a. He is 45 years old.
   b. His brother was once a governor.
   c. He is an honest man.
   d. He is a Republican.

3. In the Bartt County elections, all of the offices were won by Republicans. John Jones was elected district attorney.

   Which statement may NOT be true?

   a. John Jones is a Republican.
   b. Only Republicans ran for office.
   c. Only Republicans were elected.
   d. All Republicans won.

A company in New York makes radios which sell for the prices listed below:

City	Price	Miles from Factory
New York City	$30	-
Miami	32	1,336
Denver	34	1,605
Honolulu	42	4,969

4. Which reason best explains the difference in price?

   a. Tax rates are different.
   b. Transportation costs are figured into the price.
   c. Radios cost more in some cities than in others.
   d. Everything costs more in some cities.

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Mrs. A said, "They should never build a jail near so many homes and families. It just isn't safe."

Mrs. B argued, "The land here is cheap and will save tax money. The police will carefully guard our neighborhood."

5. About what do Mrs. A and Mrs. B disagree?

   a. whether or not jails are safe
   b. whether or not a jail should be built
   c. the cost of the land
   d. where the jail should be built

6. The mayor announced that a $100,000 statue will be built on the land instead of the jail.

   Which statement would probably be made by Mrs. B?

   a. "Statues are unsafe."
   b. "It is an ugly addition to our neighborhood."
   c. "That statue is a waste of our money."
   d. "The people should get to vote on it."

---

7. The tribe discussed important decisions with the oldest person in the village, a 93-year-old woman.

   This shows that the tribe respects

   a. age.
   b. sex.
   c. bravery.
   d. wealth.

---

8. "Many astronauts have also been test pilots. Neil Armstrong was an astronaut."

   Which statement canNOT be true?

   a. Neil Armstrong was also a scientist.
   b. Neil Armstrong was a test pilot.
   c. All test pilots are astronauts.
   d. Some test pilots become astronauts.

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9. All of the girls in Mrs. Phillip's room visited the museum. Joan is a girl in Mrs. Phillip's room.

Which statement MUST be true?

a. Joan visited the museum.
b. No boys visited the museum.
c. All students in Mrs. Phillip's room visited the museum.
d. Mrs. Phillip likes girls better than boys.

Ms. Smith wrote:

"Eighty percent of the people interviewed prefer the new Futura. These experts say it handles like a dream, looks like a sports car, and gets 45 miles per gallon."

10. About which of the following was an opinion given?

a. the Futura
b. experts
c. sports cars
d. mileage

11. For what purpose do you think Ms. Smith wrote the statement?

a. government report
b. a newspaper advertisement
c. a letter to a friend
d. just for fun

---

12. In a dry spell of the 1930's, there was little rain and farmers had few crops to sell.

Which of the following is NOT true?

a. Poor crops caused the dry spell.
b. The dry spell caused farm income to drop.
c. The dry spell caused food shortages.
d. The dry spell caused poor crops.

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Region	Temperature Ranges	Average Temperature	Annual Rainfall
A	30-100°	65°	50-70"
B	65- 95°	80°	10-20"
C	65-100°	75°	20-40"
D	65- 90°	80°	50-70"

A certain crop grows best where the temperature is hot and rainfall is heavy.

13. In which region would you recommend that the crop be grown?

a. region A
b. region B
c. region C
d. region D

When a lot of wheat is produced, the price of wheat goes down.
When the wheat crop is small, the price of wheat rises.

Suppose that a frost destroys much of the sugar beet crop in a region where most of the world's sugar is grown.

14. What will probably happen?

a. The price of sugar will remain the same.
b. The price of sugar will rise.
c. The price of sugar will go down.
d. There isn't enough information to tell.

---

15. A girl is trying to find a location on a world map.

Which question should she ask first?

a. Is it in Mexico?
b. Is it on land?
c. Is it a city?
d. Is it a river?

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16. Ms. Parker is writing a book about the favorite recipes of French kings.

Which one should be her best source of information?

a. an article about France
b. a French cookbook
c. the diary of King Louis XII of France
d. records kept by the French palace kitchen

---

17. "James Polk must have been a lawyer because he was a president, and Abraham Lincoln was a lawyer."

What is wrong with that statement?

a. Presidents are not lawyers.
b. Abraham Lincoln was not a president.
c. Not all presidents are lawyers.
d. Not all lawyers are presidents.

---

18. Mr. Adams was offered a piece of land for his new factory which would employ 300 workers.

Which of the following reasons made the land a poor choice?

a. The price was low.
b. It was near a major railroad line.
c. There was plenty of water nearby.
d. It was 200 miles to the nearest city.

---

19. Which of the following is an opinion?

a. The United States belongs to the United Nations.
b. The United States has the finest government.
c. The Constitution guarantees freedom of speech.
d. Washington, D. C. is the capital of the United States.

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A good news story begins with a paragraph which tells who, what, where, when, and why.

> At 4:00 yesterday afternoon Colonel Crafts read the Declaration of Independence to an excited crowd outside the Massachusetts Statehouse. The people received the news of its signing with great joy.

20. Which part is missing from the above story?

a. what
b. where
c. when
d. why

A heading is missing from the following outline.

I. Head of government
   A. President
   B. Chief
   C. Mayor
   D. Queen

II. _____
   A. John F. Kennedy
   B. George Washington
   C. Richard M. Nixon
   D. Gerald R. Ford

21. Which term belongs by number II?

a. Abraham Lincoln
b. Governors
c. Kings
d. U. S. Presidents

---

22. Judy studied a map of Country X. She found that ten state capitals were located near water.

Which one of the following statements may NOT be true?

a. Some capitals may be located in mountains.
b. Country X has only ten states.
c. Ten capitals are located by water.
d. Country X has at least ten states.

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Four visitors lived with the Tohiko people for several months.

Mr. A took notes on the natives' daily work, how their homes were built, what they ate, and how the children learned.

Ms. B studied ruins of an old village nearby, dug up old tools, and collected a box of stone weapons from a cave.

Ms. C observed their rules and attended meetings of the tribal council.

Mr. D was interested in the items traded with other tribes and in the way they shared food gathered by the women.

23. The four people are probably

a. Tohiko tribesmen.
b. American tourists.
c. from another tribe.
d. students from a college.

24. Mr. A is a person who

a. studies how people used to live.
b. makes notes about everything he sees.
c. studies how people live.
d. writes books about strange people.

25. If Mr. D went to the United States he would probably want to visit

a. a bank and a grocery store.
b. a family in its home.
c. a museum and a college.
d. Washington, D. C. and a city council meeting.

26. A skull is discovered in the bank of a creek. Who will be most interested in it?

a. Mr. A
b. Ms. B
c. Ms. C
d. Mr. D

---

27. Which source would be best for finding the causes of the flu in 1918?

a. newspaper articles
b. interviews with survivors
c. a nurse's diary
d. a doctor's medical records

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Prices rise when many people want an item or when there is a shortage of the item.

Read the following statements, then decide what will happen to the price.

28. 100,000 new flashlights are sold this year while 100,000 old flashlights are thrown away.

What will happen to the price of flashlight batteries? It will

a. go up.
b. go down.
c. remain the same.
d. go up in some places and down in others.

29. A new law requires motorcyclists to wear helmets.

What will happen to the price of helmets? It will

a. go up.
b. go down.
c. remain the same.
d. go up in some places and down in others.

30. A class wanted to visit a nearby museum. In planning the cost of the trip it knew--

the cost of a bus per mile,

the number of people going, and

the museum tour fee.

What else did it need to know?

a. the date of the trip
b. what would be seen
c. the distance of the trip
d. the length of the tour

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In a German encyclopedia you find the following chart. You only know two German words:

längster means "longest" hochster means "highest"

Staat	Längster Fluss	Hochster Berg	Einwohner
Ave	1,400	10,470	1,763,421
Borna	600	8,000	946,935
Celle	2,900	7,210	3,179,863
Daun	200	5,450	892,760

Answer the following questions using the chart:

31. Ave, Borna, Celle, and Daun are all

a. staats.
b. flusses.
c. bergs.
d. There is not enough information to tell.

32. The longest fluss and the greatest einwohner are in staat

a. Ave.
b. Borna.
c. Celle.
d. Daun.

33. A staat is probably

a. the name of something.
b. a number.
c. something that is long and high.
d. a person.

34. Of the following, which is the best meaning for fluss?

a. river
b. state
c. mountain
d. population

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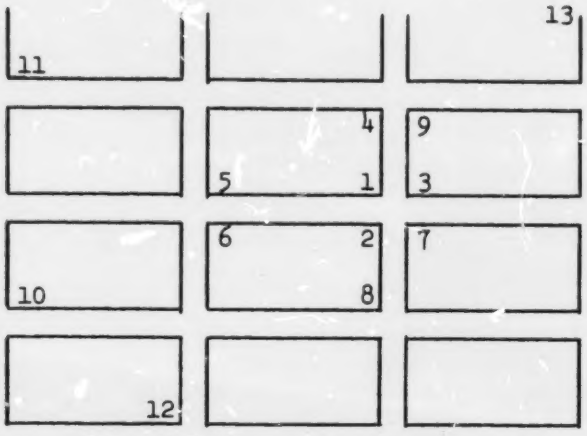

Greg lives in house number 1 on the northeast corner of a block.

35. Just south of his house is a softball lot.

Which number locates the softball lot?

a. 2
b. 3
c. 4
d. 5

36. His best friend, Joey, lives in the house across the street from the softball lot.

Which number locates Joey's house?

a. 6
b. 7
c. 8
d. 9

37. Greg walks two blocks south and one block west to school.

Which number locates the school?

a. 10
b. 11
c. 12
d. 13

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A committee wanted to know how many Americans died in World War II.

Ryan read Strange Tales from World War II.

Gail saw a World War II movie.

Amy interviewed a soldier who fought in the war.

Paul wrote a letter to the Defense Department.

Each one got a different answer.

38. Whose information would you believe?

a. Ryan's
b. Gail's
c. Amy's
d. Paul's

---

39. "Most large cities are located near bodies of water."

If that statement is true, which statement below is also true?

a. San Carlo is near an ocean. It must be a large city.
b. San Carlo is a large city. It must be near water.
c. San Carlo is a large city. It is probably near water.
d. San Carlo is a small city. It must not be near water.

---

40. A candidate for President has $1,000,000 and only 100 days to campaign before the election. The problem is to decide

a. if there is enough money.
b. where the time and money can be spent best.
c. if the time and money should be spent in one state.
d. if there is enough time.

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